

USING NHSN AR , SETUP, REPORTING , AND USES

Marc J. Meyer RPh, BPharm, FAPIC, CIC

WHY?

- JC R3 Report July 2022
- **Use of leading practices in US hospital antimicrobial stewardship programs October 2022**
- The 2023 IPPS rule expands the list of required public health measures under the CMS Promoting Interoperability Program to include antimicrobial use and resistance (AUR) surveillance.
- Beginning in 2024, hospitals must report AUR data to CDC's National Healthcare Safety Network (NHSN) to earn full credit under the Public Health Objective.
- Its better for resistance and patients

VENDOR

- Select your Vendor
 - Asolva \$ They have worked with NHSN since 2015, CAH and small hospitals are there bread and butter.
 - Senti7 \$\$\$ \$2400 a month for Clinical Pharmacy, Dose Me RX, Infection Prevention

ANTIMICROBIAL RESISTANCE (AR) VALIDATION

- <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/ar-validation-508.pdf>
- You will work with your vendor to make sure your NHSN location map is correct in NHSN and it's the same on the vendor site.
- Your vendor will send data to NHSN AR.
- You will generate data sets (I will show in next slide)
- Make sure your are getting data for all the mapped areas the vendor is sending data

I HAVE DATA IN, NOW WHAT?

- NHSN Home
- Alerts
- Dashboard ▶
- Reporting Plan ▶
- Patient ▶
- Event ▶
- Procedure ▶
- Summary Data ▶
- COVID-19 ▶
- Import/Export
- Surveys ▶
- Analysis ▶
- Users ▶
- Facility ▶
- Group ▶
- Logout

Generate Data Sets (Patient Safety)

Reporting Data Sets

Include data for the following time period:

 Beginning: 01/2010 Ending: 11/2022 [Clear Time Period](#)

[Generate Reporting Data Sets](#)

Last Generated: November 3, 2022 2:32 PM
to include data beginning 01/2010 and ending 11/2022

- Generate Data Sets
- Reports
- Statistics Calculator

ANTIMICROBIAL RESISTANCE (AR) VALIDATION

- **Confirm:** Review 20 AR Events to ensure the specimen collection date is correct. For example, if the event was reported from an inpatient location the specimen collection date should be on or after the admission date. Per the AR Option protocol, specimens collected in the outpatient location types Emergency Department & 24-hour Observation Area should use the exact same date for both specimen collection date and admission date.
- **Confirm:** Review 30-50 AR Events to confirm the final interpretation reflects the consolidated results of the specific tests (E-test, MIC, and Disk Diffusion [Zone test]) interpretations. For example, as shown in the below screenshot, if the final interpretation is reported as “R”, at least one specific test (E-test, MIC, and Disk Diffusion [Zone test]) result should be also reported as “R”.

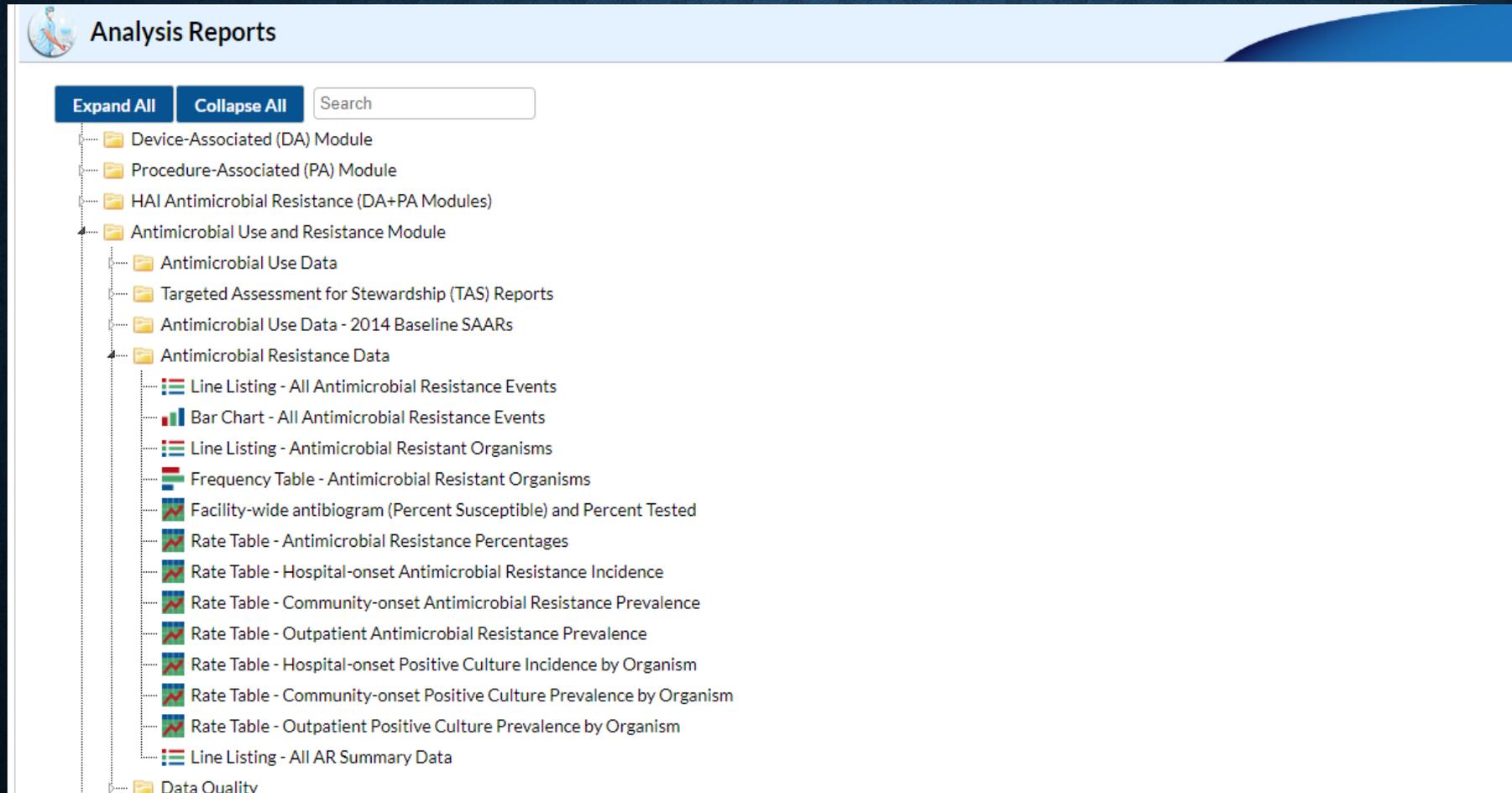
ANTIMICROBIAL RESISTANCE (AR) VALIDATION

- Confirm: Review 10 AR Events with specimens: • Collected during the last 7 days of the month or • With target organisms identified where subsequent susceptibility testing may have been performed Confirm any subsequent susceptibility testing completed by the lab is included in the NHSN AR Event results.
- Confirm: Review the Antimicrobial Resistant Organisms Line List to confirm MDROs at your facility are being submitted to NHSN.
- . Confirm: Once AR Events have been submitted for at least three months, review trends over time for specific organisms: *Escherichia coli*, *Klebsiella pneumoniae*, *Staphylococcus aureus*, and *Enterobacter spp.* Discuss any unexpected AR Event numbers with the vendor being used to submit AR Option data to NHSN.

ANTIMICROBIAL RESISTANCE (AR) VALIDATION

- Compare you antibiogram to the resistance antibiogram in NHSN
- They will be different but make sure hospital antibiogram shows the same resistance as the AR antibiogram.
- If different make sure your reporting lab is using the most current FDA or CLSI version for the M39 document.
- FDA can be different from the CLSI.

REPORTS IN NHSN AR



The screenshot displays the 'Analysis Reports' section of the NHSN interface. At the top left, there is a small icon of a person in a lab coat. The title 'Analysis Reports' is positioned to the right of the icon. Below the title, there are two buttons: 'Expand All' and 'Collapse All', followed by a search input field. The main content is a hierarchical list of report categories and specific reports. The categories are represented by folder icons, and the specific reports are represented by small icons (line graphs, bar charts, or tables) followed by their names. The 'Antimicrobial Resistance Data' category is expanded, showing a list of 14 specific reports.

Analysis Reports

Expand All Collapse All Search

- Device-Associated (DA) Module
- Procedure-Associated (PA) Module
- HAI Antimicrobial Resistance (DA+PA Modules)
- Antimicrobial Use and Resistance Module
 - Antimicrobial Use Data
 - Targeted Assessment for Stewardship (TAS) Reports
 - Antimicrobial Use Data - 2014 Baseline SAARs
 - Antimicrobial Resistance Data
 - Line Listing - All Antimicrobial Resistance Events
 - Bar Chart - All Antimicrobial Resistance Events
 - Line Listing - Antimicrobial Resistant Organisms
 - Frequency Table - Antimicrobial Resistant Organisms
 - Facility-wide antibiogram (Percent Susceptible) and Percent Tested
 - Rate Table - Antimicrobial Resistance Percentages
 - Rate Table - Hospital-onset Antimicrobial Resistance Incidence
 - Rate Table - Community-onset Antimicrobial Resistance Prevalence
 - Rate Table - Outpatient Antimicrobial Resistance Prevalence
 - Rate Table - Hospital-onset Positive Culture Incidence by Organism
 - Rate Table - Community-onset Positive Culture Prevalence by Organism
 - Rate Table - Outpatient Positive Culture Prevalence by Organism
 - Line Listing - All AR Summary Data
- Data Quality

REPORTS IN NHSN AR

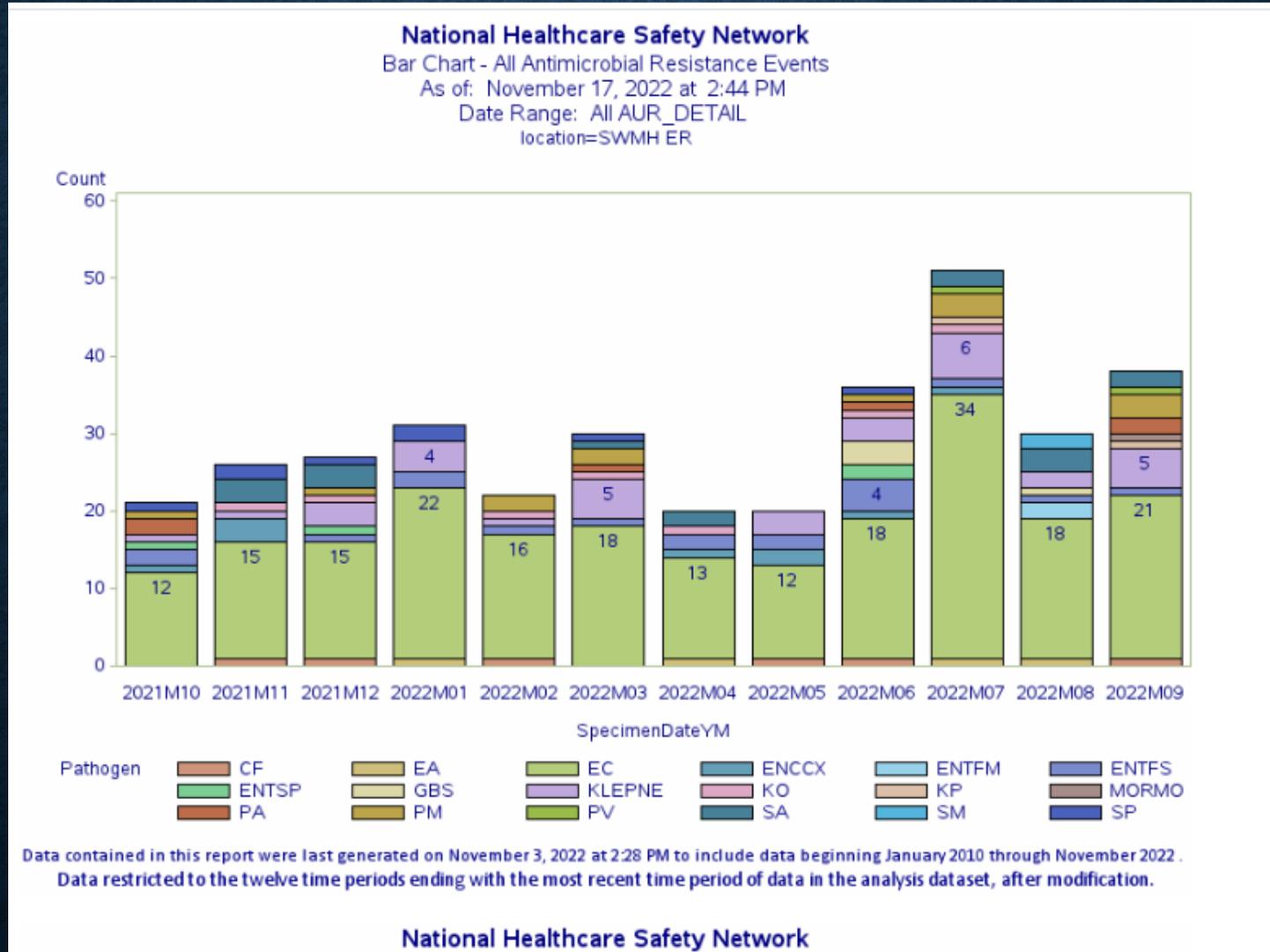
ANTIBIOGRAM

The screenshot displays a web browser window with the URL `nhsn2.cdc.gov/ps/showAnalysisReport.action`. On the left is a navigation menu with the following items: Import/Export, Surveys, Analysis, Users, Facility, Group, and Logout. The main content area lists various report options, each with a small icon:

- Line Listing - All Antimicrobial Resistance Events
- Bar Chart - All Antimicrobial Resistance Events
- Line Listing - Antimicrobial Resistant Organisms
- Frequency Table - Antimicrobial Resistant Organisms
- Facility-wide antibiogram (Percent Susceptible) and Percent Tested
- Rate Table - Antimicrobial Resistance Percentages
- Rate Table - Hospital-onset Antimicrobial Resistance Incidence
- Rate Table - Community-onset Antimicrobial Resistance Prevalence
- Rate Table - Outpatient Antimicrobial Resistance Prevalence
- Rate Table - Hospital-onset Positive Culture Incidence by Organism
- Rate Table - Community-onset Positive Culture Prevalence by Organism
- Rate Table - Outpatient Positive Culture Prevalence by Organism
- Line Listing - All AR Summary Data
- Data Quality
 - Line Listing - Antimicrobial Use Data to Review

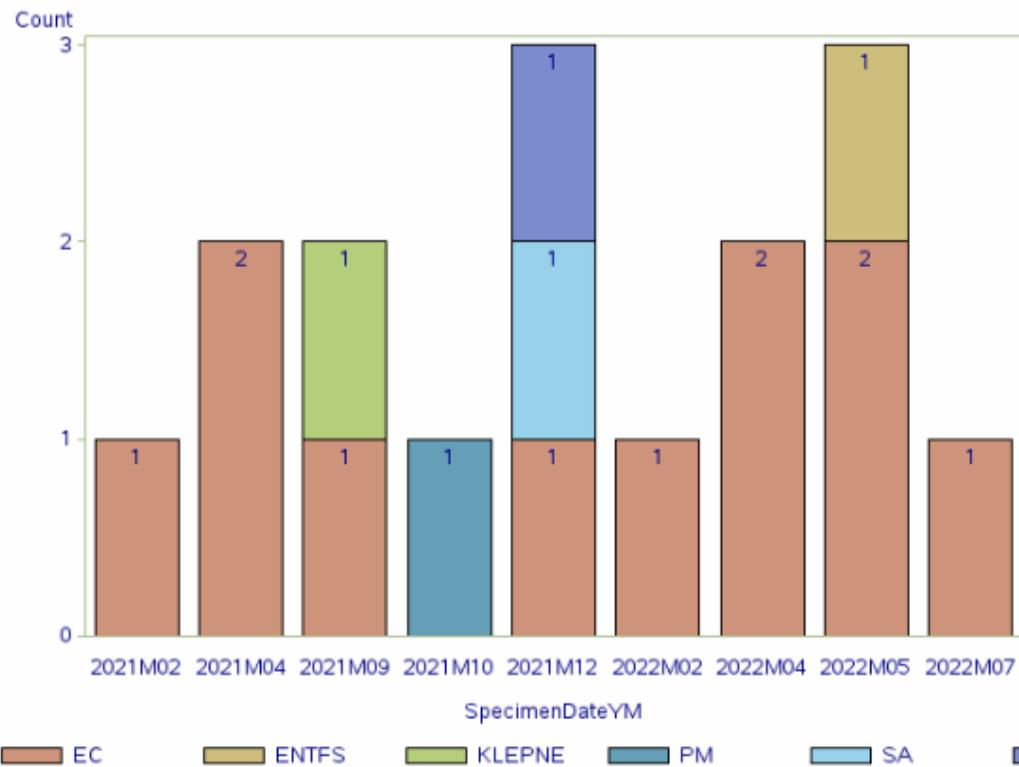
REPORTS IN NHSN AR: BAR

(APPENDIX I. NHSN AR OPTION PHÉNOTYPE DÉFINITIONS)



REPORTS IN NHSN AR: BAR

National Healthcare Safety Network
Bar Chart - All Antimicrobial Resistance Events
As of: November 21, 2022 at 2:58 PM
Date Range: All AUR_DETAIL
location=SWMH MS



Data contained in this report were last generated on November 3, 2022 at 2:28 PM to include data beginning January 2010 through November 2022.
Data restricted to the twelve time periods ending with the most recent time period of data in the analysis dataset, after modification.

REPORTS IN NHSN AR: FREQUENCY TABLE

← → ↻ 🏠 nhsn2.cdc.gov/ps/runRequestAnalysisReport.action

National Healthcare Safety Network
Frequency Table - Antimicrobial Resistant Organisms
As of: November 21, 2022 at 3:00 PM
Date Range: All ANTIBIOGRAM_AR
If (((phenotype_AR IN ("MRSA_AR", "ESCecoli_AR", "ESCklebsiella_AR", "carbNS_Acine_AR", "carbNS_PA_AR", "MDR_Acine_AR", "MDR_PA_AR", "VREfaecium_AR", "VREfaecalis_AR", "CREexpanded_AR", "FR_Candi_AR", "DR_SP_AR")))

Frequency **Table of phenotype_AR by specDateYM**

| phenotype_AR | specDateYM | | | | | | | | | | | | | Total |
|------------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| | 2021M02 | 2021M05 | 2021M07 | 2021M08 | 2021M11 | 2021M12 | 2022M02 | 2022M03 | 2022M04 | 2022M06 | 2022M07 | 2022M08 | 2022M09 | |
| DR_SP_AR | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 4 |
| ESCecoli_AR | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 3 | 0 | 1 | 0 | 0 | 9 |
| ESCklebsiella_AR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 4 |
| MDR_PA_AR | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| MRSA_AR | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 |
| VREfaecium_AR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| Total | 1 | 2 | 2 | 1 | 1 | 2 | 1 | 2 | 4 | 1 | 3 | 2 | 2 | 24 |

1. Please find the document containing Phenotype_AR definitions at <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/aur/ar-phenotype-definitions-508.pdf>
Data contained in this report were last generated on November 3, 2022 at 2:28 PM to include data beginning January 2010 through November 2022 .

MY FAVORITE REPORT AU TAS (TARGETED ASSESSMENT FOR STEWARDSHIP)

The screenshot displays the NHSN Patient Safety Component Home Page. The left sidebar contains navigation options: NHSN Home, Alerts, Dashboard, Reporting Plan, Patient, Event, Procedure, Summary Data, COVID-19, Import/Export, Surveys, Analysis, Users, Facility, Group, and Logout. The main content area is titled 'TAS Dashboard' and features a form with the following elements:

- Population:
- All Antibacterials:
- BSHO:
- BSCA:
- GramPos:
- NSBL:
- CDI:
- Antifungal:

Buttons and status: 'Export PDF', 'Generate New' (Last Generated: November 3, 2022 2:32 PM), 'Refresh', 'Reset', and 'Save'.

No SAAR targets set.

Footnotes

1. Abbreviations: ALL - All antibacterial agents; BSHO - Broad spectrum antibacterial agents predominantly used for hospital-onset infections; BSCA - Broad spectrum antibacterial agents predominantly used for community-acquired infections; GRAMPOS - Antibacterial agents predominantly used for resistant Gram-positive infections (e.g., MRSA); NSBL - Narrow spectrum beta-lactam agents; CDI - Antibacterial agents posing the highest risk for CDI; ANTIFGL - Antifungal agents predominantly used for invasive candidiasis.
2. ND = No SAAR data available; NT = SAAR data but no SAAR Target available. As a reminder, AU-CAD values only appear if you've entered a SAAR target and have uploaded AU data for locations that can generate SAARs.
3. AU-CAD = Observed Antimicrobial Days - (Predicted Antimicrobial Days * Facility Identified SAAR Target)
4. Data include the most recent complete four calendar quarters.
5. A negative AU-CAD value means the SAAR Target was greater than the current SAAR value for that category. To increase your SAAR value, the negative AU-CAD value represents the number of antimicrobial days to add per time period to reach your SAAR Target.

MY FAVORITE REPORT AU

Secure Access Management Serv x NHSN 11.0.0.6 NHSN Patient Safi x SAAR nhsn - Google Search x +

nhsn2.cdc.gov/ps/showHome.action?subaction=tasdashboard

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

NHSN
NATIONAL HEALTHCARE SAFETY NETWORK

NHSN - National Healthcare Safety Network MMEYER3749
Southwest Memorial Hospital

NHSN Home

- Alerts
- Dashboard
- Reporting Plan
- Patient
- Event
- Procedure
- Summary Data
- COVID-19
- Import/Export
- Surveys
- Analysis
- Users
- Facility
- Group
- Logout

NHSN Patient Safety Component Home Page

- TAP Strategy Dashboard
- TAS Dashboard**

Population:

All Antibacterials Last Generated: November 3, 2022 2:32 PM

BSHO

BSCA

GramPos

NSBL

CDI

Antifungal

No SAAR targets set.

Footnotes

1. Abbreviations: ALL - All antibacterial agents; BSHO - Broad spectrum antibacterial agents predominantly used for hospital-onset infections; BSCA - Broad spectrum antibacterial agents predominantly used for community-acquired infections; GRAMPOS - Antibacterial agents predominantly used for resistant Gram-positive infections (e.g., MRSA); NSBL - Narrow spectrum beta-lactam agents; CDI - Antibacterial agents posing the highest risk for CDI; ANTIFGL - Antifungal agents predominantly used for invasive candidiasis.
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4. Data include the most recent complete four calendar quarters.
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MY FAVORITE REPORT?

- Procedure ▶
- Summary Data ▶
- COVID-19 ▶
- Import/Export ▶
- Surveys ▶
- Analysis ▶
- Users ▶
- Facility ▶
- Group ▶
- Logout ▶

Population: Adult ▼

All Antibacterials

BSHO

BSCA

GramPos

NSBL

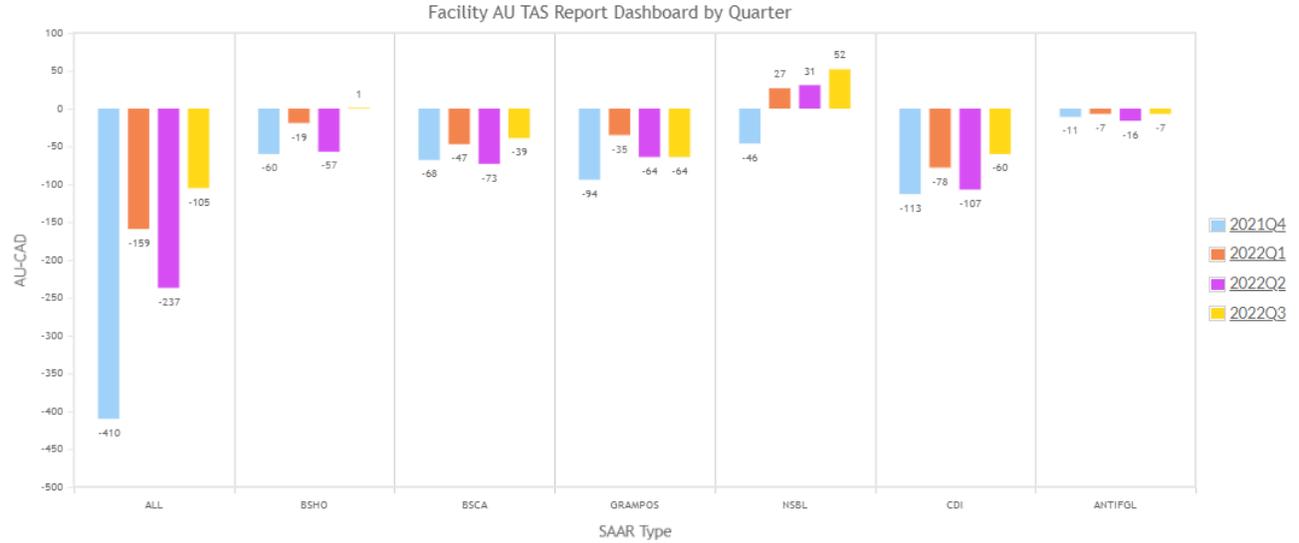
CDI

Antifungal

[Export PDF](#)

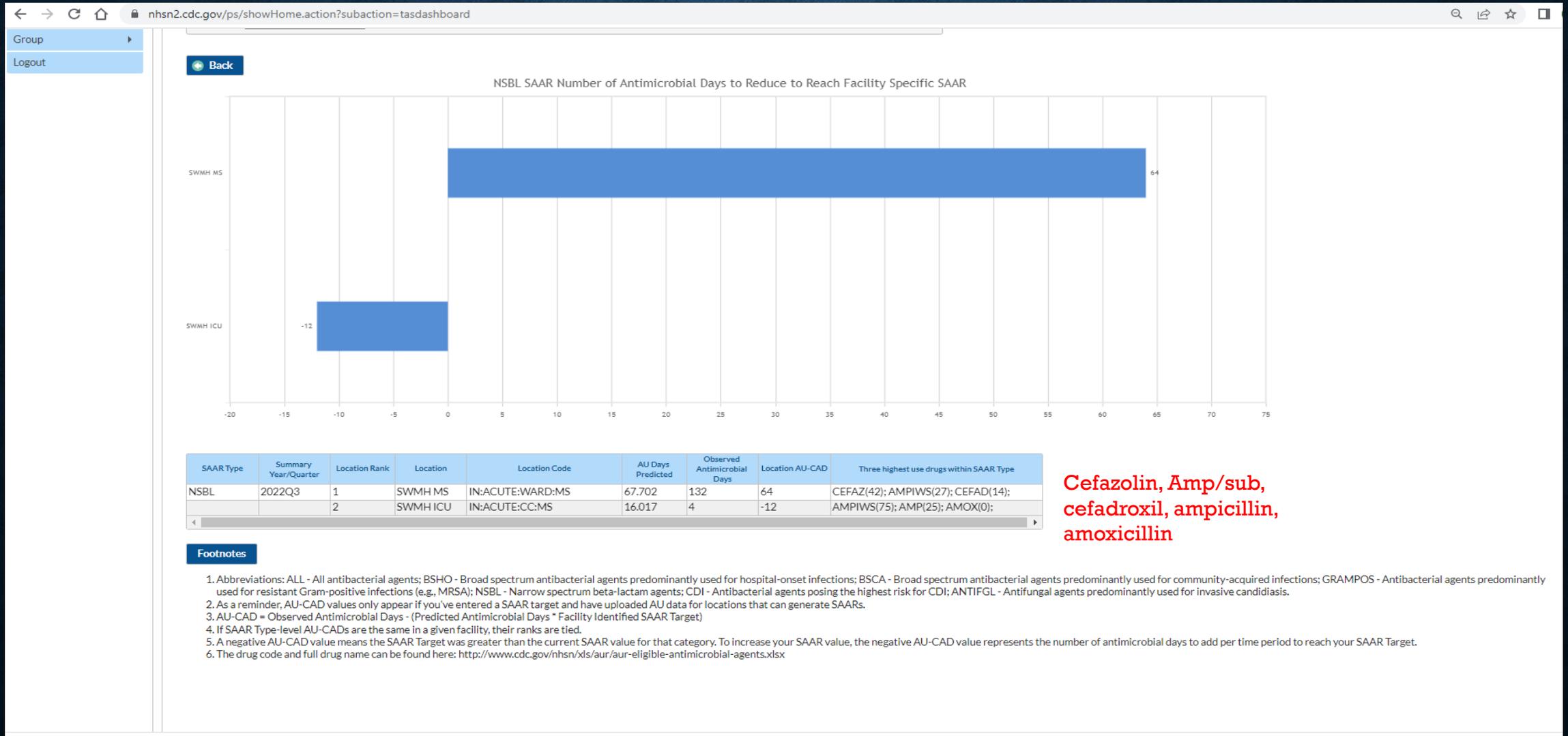
[Generate New](#) Last Generated: November 3, 2022 2:32 PM

[Refresh](#) [Reset](#) [Save](#)



| Facility AU-CAD | | | | |
|-----------------|--------|--------|--------|--------|
| SAAR Type | 2021Q4 | 2022Q1 | 2022Q2 | 2022Q3 |
| ALL | -410 | -159 | -237 | -105 |
| BSHO | -60 | -19 | -57 | 1 |
| BSCA | -68 | -47 | -73 | -39 |
| GRAMPOS | -94 | -35 | -64 | -64 |
| NSBL | -46 | 27 | 31 | 52 |
| CDI | -113 | -78 | -107 | -60 |
| ANTIFGL | -11 | -7 | -16 | -7 |

THEN THE ANTIMICROBIALS IN THE BOXES

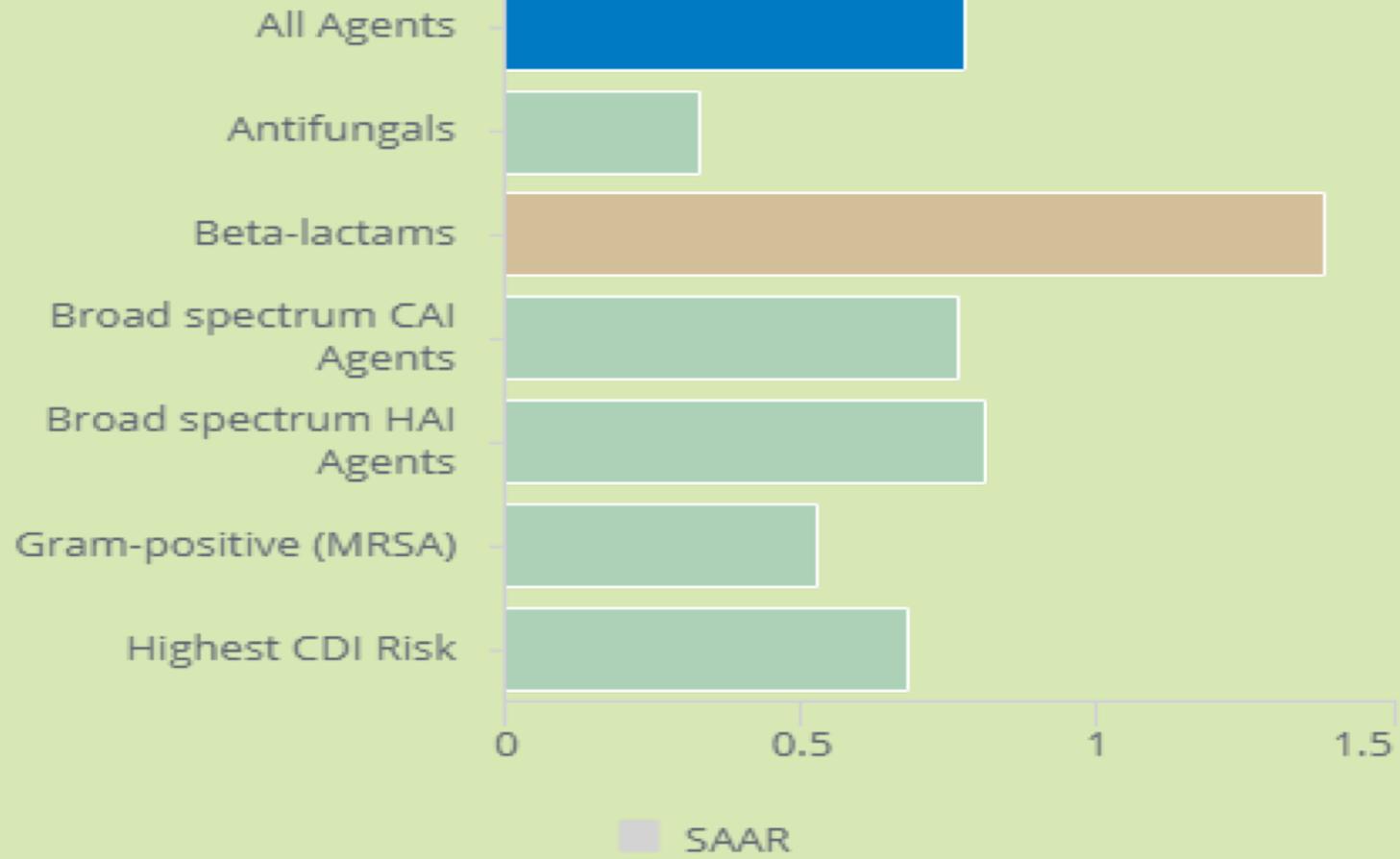


PRESENCE OF ON-SITE ID-SPECIALISTS ASSOCIATED WITH LOWER TOTAL INPATIENT ANTIMICROBIAL USE



Livorsi DJ et al. Clin Infect Dis 2021; 72(10): 1810-7.

SAAR



DATA DEMONSTRATE PHARMACIST-LED INTERVENTIONS REDUCE UNNECESSARY ANTIMICROBIAL USE AND IMPROVE PATIENT OUTCOMES

Antimicrobial management team, led by an ID pharmacist with ID physician support compared to ID Fellows:

- Appropriate antibiotic choice: 87% vs 47%
- Cure rate: 64% vs 42%
- Median cost of hospital stay: \$6,468 vs \$7,864
- Median cost of antibiotics: \$79 versus \$122

Gross R, et al. *Clin Infect Dis*. 2001;33(3):289-295. Du Y et al. *Front Pharmacol*. 2020; 11: 442. Cantudo-Cuenca MR et al. *Scientific Reports* 2022; 12: 9501. Kooda K et al. *Ann Emerg Med*. 2022; 79(4): 374-387.

REFERENCES TO HELP

General info NHSN

- https://www.cdc.gov/nhsn/pdfs/validation/2022/pcsmanual_2022_508.pdf

AR Info

- <https://www.cdc.gov/nhsn/pdfs/pscmanual/11pscaurcurrent.pdf>

Papers

<https://pubmed.ncbi.nlm.nih.gov/36226839/>

https://www.jointcommission.org/-/media/tjc/documents/standards/r3-reports/r3_antibioticstewardship_july2022_final.pdf

- Marc J Meyer mmeyer@swhealth.org 970-564-2194 Office